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DOSAAF AND CIVIL DEFENSE TRAINING IN THE USSR, FEBRUARY - JUNE 1953

/Summary: During the period February - June 1953, mention of PVKhO (antiaircraft and chemical defense) training in the Dosaaf press of the USSR consisted mainly of a few articles on aspects of civil defense and the usual brief mention of PVKhO training in Dosaaf primary organizations.

This report presents a condensed translation of an article on construction of air-raid shelters (a similar article was published in Patriot Rodiny, 20 Feb 52; [redacted]), a condensed translation of a conspectus for a PVKhO class on the extinguishing of incendiary materials, and a summary of an article on defense against poison gas. The report also includes summaries of several items on PVKhO training in Dosaaf primary organizations, and a list of civil defense films and books mentioned in Dosaaf publications during the period covered in the report.

Sketches referred to herein are appended./

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1. ARTICLES WRITTEN FOR PVKhO STUDY CIRCLES

(Air-Raid Shelter Construction, Poison Gas Defense, the Extinguishing of Incendiary Materials)

"Defense Against Demolition and Fragmentation Bombs," by I. Savitskiy (Kryl'ya Rodiny, No 3, Mar 53, pp 19-22) (Condensed)

The principal means of defense against demolition and fragmentation bombs is the air-raid shelter and more simple forms of cover, such as the trench shelter (shchel'), the dugout (zemlyanka), and the tunnel (gallereya).

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The shelter may have reinforced-concrete walls and ceilings several meters thick or it may be constructed underground at a depth of 20-30 or more meters. In this case the earth itself acts as a defense. These shelters are a good protection even when bombs strike the structure directly.

Different types of underground structures already in existence may be used as shelters. The largest and safest type of shelter for defense against incendiary, fragmentation, and other bombs is that which is constructed in the cellars of buildings.

Cellar shelters should have the following rooms: a gasproof chamber, compartments for housing the people, toilets, and a filter-ventilating chamber. The arrangement of the rooms in the shelter may vary. An example of the floor plan of a typical cellar shelter is given in Sketch 1. Descending by a stairway into room No 1, which has a reinforced hermetically sealed door (h) leading to the shelter, we then arrive in the small gasproof chamber (No 2). This chamber contains another hermetically sealed door (i).

The gasproof chamber is necessary in case of the enemy's use of poison gas. In this event, the shelter should be entered in the following manner: by opening the reinforced hermetically sealed door, entering the gasproof chamber and swiftly closing the door, opening the second door, entering the shelter compartment (No 4), and again quickly closing the door. This successive opening and closing of the doors will prevent contaminated air from entering the shelter. If the air is not contaminated, the doors to the gasproof chamber should remain open as long as there are people in the shelter.

There are three other doors in the first compartment (No 4) one leading to the toilet (No 3), one to the second compartment (No 5), and one the the filter-ventilating room (No 6). The first compartment has an auxiliary exit with hermetically sealed and reinforced hermetically sealed doors.

In the second compartment (No 5), is the so-called manhole (laz) (c), which is used as an emergency exit in case the normal entrances and exits are obstructed. The manhole is closed off by shutters: the inner one hermetically sealed and the outer reinforced and hermetically sealed

There are not only ventilators in the shelter but also special filters (Sketches 1 and 2). The filter-ventilating system is located in room No 6 (Sketch 1).

A system of valves (Sketch 2, valves a, b, and c) is used to bring the outside air through or around the filters and into the filter-ventilating system. If the outside air is not contaminated, then valves a and b are closed, valve c is opened, and the air is conducted through the intake pipe past the filters and ventilator and into the shelter. If the outside air is contaminated, then valve c is closed, and valves a and b are opened. Thus, the contaminated air enters the filter first, is purified there, and then passes into the ventilator where it is piped into the shelter.

The filter is constructed and operates on the same principle as that of the canister of a gas mask. To prevent outside air from entering the shelter without passing through the filter, all of the shelter's rooms are hermetically sealed, all cracks and openings are closed up, and the entrances, exits, and manholes are closed with hermetically sealed and reinforced hermetically sealed doors and shutters. These doors and shutters are made of metal or wood and their frames are covered with rubber or with a padding made from cotton wadding or thick felt. The doors are sealed tightly with the help of special locks. If the hermetic sealing is done correctly, the air pressure inside the shelter will

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be slightly greater than that on the outside when the filter-ventilating system is in operation. This raising of the air pressure inside the shelter prevents outside air from penetrating through cracks, etc., which were not discovered and sealed.

The shelter should have fire-fighting equipment (one or two fire extinguishers, water barrels, etc.), disaster equipment (axes, etc.), and a first-aid kit, in addition to tables, chairs, etc.

If there are no cellars which can be used as air-raid shelters, then shelters of a simpler type may be used instead: trench shelters, dugouts, and tunnels. During World War II, such shelters were used widely in cities and in rural areas and proved to be excellent means of defense. They afford good protection against bomb fragments and concussion waves and can be constructed quickly and inexpensively.

The best sites for the construction of trench shelters and dugouts are on open, dry land -- gardens, parks, vacant lots, etc. To prevent obstruction, trench shelters and dugouts are placed at a distance from the nearest building of not less than half the height of that building.

The trench shelter is designed to shelter people for a short period during an air raid. It is a narrow, deep trench, with a simple covering on top. Trench shelters can be of different dimensions, but it is advisable that they be as narrow and their sides as steep as possible. Usually the width of the trench at its lowest part is 80 centimeters, and at its highest part from 100 to 120 centimeters, depending on the steepness of the walls. The depth of the shelter is 210 centimeters. To lessen the effects of a direct hit, the shelter is built in a zigzag line, so that each section of the trench holds no more than 20 persons. The shelter is entered by steps at each end. The walls of the shelter are reinforced with boards and posts. To construct the roof of the shelter, beams are laid across the trench, extending 0.5 meter on either side, and on these planks are laid. Clay is then placed on top, followed by roofing paper or a rubberized roof covering (Ruberoid), and then soil and turf. Niches, 0.5 x 0.5 or 0.6 x 0.6 meter in dimension, are built in the walls of the shelter for storing water barrels.

To provide shelter for a prolonged period, dugouts are constructed. These are better equipped than the trench shelters, are winterproofed, and can be equipped with a filter-ventilating system.

In small cities and rural areas where there are few reliable cellars or no cellars at all, dugouts (Sketch 3) are the best means of defense.

If a filter-ventilating system is set up in the dugout, the dugout is hermetically sealed. Two doors are constructed at its entrance to form a gasproof chamber (Sketch 4), which may be 1.5-2 meters long and 1-1.5 meters wide.

For purifying the air in the dugout a factory-made ventilator and filter can be installed (Sketch 5) or the dugout can be equipped with an earth filter, the structure of which is shown in Sketch 6.

The tunnel is also a good type of shelter. It consists of a deep horizontal recess, built without a direct opening onto the surface of the ground (Sketch 7). The tunnel shelter can be built in the form of a shaft with one entrance, or can be shaped like a block letter "U" with two entrances. The walls and ceiling of the tunnel are reinforced with timber.

"The Extinguishing of Incendiary Materials and Resulting Fires," (A Conspectus to Aid Instructors), by P. Kirillov (Voyennyye Znaniya, No 2, Mar 53, p 19) (Condensed)

I. Instructor's Lecture

Aim of the Lesson: To explain to the students the basic methods of extinguishing incendiary materials.

Method of Study: Lecture with demonstrations.

Problems to Be Studied: Methods of extinguishing incendiary bombs and other combustible materials; methods of removing them from premises; the extinguishing of burning fluids and clothing; conduct in smoke-filled, burning buildings; evacuation of persons and property during a fire; types of burns and first aid

Time: 20-30 minutes.

Material Aids: Models of incendiary bombs, small portable water pumps, posters.

/A detailed description of the instructor's lecture methods has been omitted./

II. Home Study

Students study the section, "The Extinguishing of Incendiary Bombs," in the textbook Dosaafovtsu o MPVO (What a Dosaaf Member Should Know About Local Antiaircraft Defense), pp 30-35.

III. Discussion and Question Period

IV. Practical Study

Problems: removal of incendiary bombs from premises; use of water, fire extinguishers, and sand in putting out fires.

Time: 80-90 minutes

Equipment: Two buckets, a water barrel, water hose with bucket, sand, three fire extinguishers, two spades, a dummy bomb, rope, kerosene.

/A detailed description of each step in the practical lesson has been omitted./

"Poison Gas Defense," by I. Savitskiy (Kryl'ya Rodiny, No 6, Jun 53, pp 18-20) (Summary)

The article gives a brief history of efforts to outlaw the use of poison gas and bacteriological warfare, stressing the US Senate's failure to ratify the Geneva Protocol of 1925. It also states that since World War I the "imperialist states" have been perfecting old and developing new forms of poison gas and that from time to time information on this appears in the foreign press, such as data published on lewisite, diphosgene, and adamsite.

The article contains a description of the effects of the following poison gases: phosgene, mustard gas, hydrocyanic acid, trombenzylcyanide, and diphenylcyano arsine. This is followed by a detailed description of gas masks and

protective clothing. Sketches of a filter gas mask, the civilian gas mask GP-4, a canister of a gas mask, and a protective suit of clothing are included in the article.

II. REPORTS OF PVKhO TRAINING IN PRIMARY ORGANIZATIONS

According to a Patriot Rodiny article, at the Ural Chemical Machine Building Plant in Sverdlovsk Dosaaf members are taught "the proper defense of an industrial target." There are more than three PVKhO circles at the plant. (Patriot Rodiny, 1 Feb 53)

Another Patriot Rodiny article states that all members of the Far Eastern Bureau of the Main Administration for the Sale of Metal and "Metiz" Products have received training in the PVKhO study circle of the bureau's primary organization. The article reports that Dosaaf members learned first-aid techniques, how to extinguish incendiary bombs, and measures for chemical defense. The circle also trained a group of instructors who are being used to help the Dosaaf organization prepare others for fulfilling PVKhO norms. For example, two of the instructors are conducting circles in their respective living quarters and have received the necessary literature and training aids from the primary organization. (Patriot Rodiny, 1 Apr 53)

According to a Voyennyye Znaniya article, particular attention has been devoted to the establishment of Dosaaf primary organizations in building managements in Leningrad and especially to PVKhO training in these organizations. For example, in Building Management No 124, Kuybyshevskiy Rayon, a showing of several films on PVKhO was organized. Several primary organizations systematically conduct expeditions to the military museum, to the city PVKhO school, etc. (Voyennyye Znaniya, No 5, May 53)

III. BOOKS AND FILMS ON PVKhO REPORTED IN THE DOSAAF PRESS

Books

1. Dosaafovtsu o MPVO (What the Dosaaf Member Should Know About Local Antiaircraft Defense) (Voyennyye Znaniya, No 3, Mar 53)

2. Protivo-vozdushnaya Oborona (Antiaircraft Defense), by I. Savitskiy and P. Kirillov, Dosaaf Publishing House, Moscow, 1952, price 4 rubles, 50 kopeks, 220 pages. A review of this book in Patriot Rodiny states that the book is designed as a textbook for PVO instructors. The book acquaints the reader with defense during air raids, fire fighting, and engineer-technical defense methods. Various chapters are devoted to war gases and gas defense, first aid, and the organization of local PVO in homes. The book also tells how PVKhO training circles are set up and how study is carried out in them. A model conspectus for such a circle is included. (Patriot Rodiny, 1 Mar 53)

A more detailed review of this book was published in Voyennyye Znaniya, June 1953. According to this review, the first chapter of the book gives a detailed account of the "weapons of destruction used by the air forces of the aggressor imperialist states," among them napalm and various chemical bombs. The second part of the book deals with engineer-technical defense methods such as the construction of shelters, camouflage, etc. A special chapter is devoted to MPVO (local antiaircraft defense) in the home and describes MPVO signals, the general duties of the population as to MPVO, and the activities of groups of air raid defense workers. (Voyennyye Znaniya, No 3, Mar 53)

Films

1. "MPVO in the Home" (Voyennyye Znamiya, No 5, May 53)

2. "Correct Conduct After an Air-Raid Signal" (Voyennyye Znaniya, No 5, May 53)

3. "Fulfill the Norms for 'Ready for Antiaircraft and Chemical Defense'". Produced by the Kuybyshev Studio; script writer, K. Slavin; director, T. Bunimovich. The film gives the requirements for fulfilling "Ready for PVKhO" norms and tells how training is conducted in Dosaaf PVKhO study circles. In the film typical PVKhO circles are shown at work. (Kryl'ya Rodiny, No 3, Mar 53)

/Sketches follow./

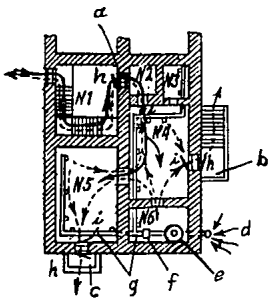

Figure 1. Ground Plan of a Cellar Shelter. N1 - entryway; N2 - gasproof chamber; N3 - toilet; N4,N5 - shelter compartments; N6 - compartment for the filter-ventilating system; ⟶ route to shelter; - - -→ possible exits; a - entrance to shelter; b - emergency exit; c - manhole; d - air-intake pipe; e - filter; f - ventilator; g - pipes conducting purified air into shelter; h - reinforced hermetically sealed door; i - hermetically sealed door.

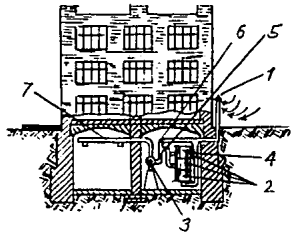

Figure 2. Plan of the Filter-Ventilating System in a Cellar Shelter. 1 - air-intake pipe; 2 - filter; 3 - ventilator; 4 - valve a; 5 - valve b; 6 - valve c; 7 - pipes conducting purified air into shelter.

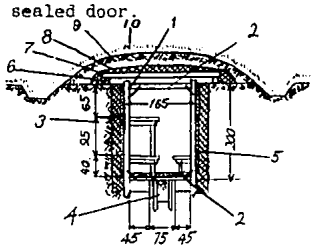

Figure 3. Dugout. 1 - posts; 2 - beams; 3 - packed clay walls; 4 - drainage ditch; 5 - board planking; 6 - foundation beams; 7 - covering of boards; 8 - clay; 9 - earth; 10 - turf.

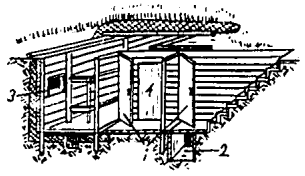

Figure 4. Dugout Entrance (With Gasproof Chamber. 1 - hermetically sealed doors (between them, the gasproof chamber); 2 - sump; 3 - storage niche; 4 - curtain covering entrance to toilet.

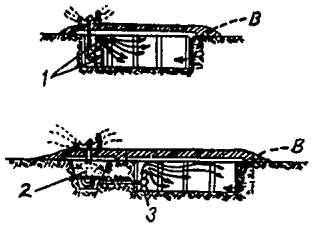

Figure 5. Plan of the Filter-Ventilating System in a Dugout. B - entrance; 1 - factory-made filter and ventilator; 2 - earth filter; 3 - ventilator (or bellows); --→ path of incoming air; ——→ purified air.

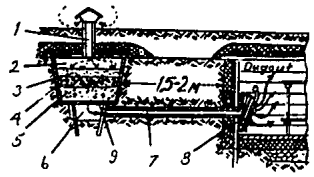

Figure 6. Structure of an Earth Filter. 1 - air-intake pipe; 2 - opening above the filter; 3 - slaked lime; 4 - charcoal; 5 - earth; 6 - opening below the filter; 7 - pipe from filter to the shelter; 8 - bellows; 9 - grating.

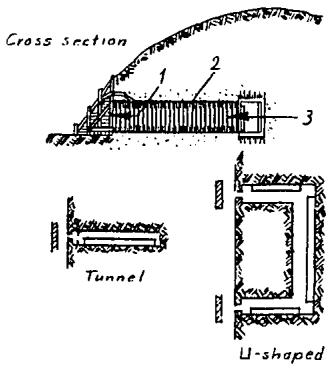

Figure 7. Plan of the Construction of a Tunnel. 1 - entrance; 2 - wooden beams; 3 - tunnel.

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